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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,597	09/11/2000	Oscar Chi-Lim Au	016660-039	4795

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EXAMINER
LEE, RICHARD J

ART UNIT	PAPER NUMBER
2613	7

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/659,597	Applicant(s) Au et al
	Examiner Richard Lee	Art Unit 2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-38 is/are pending in the application.

4a) Of the above, claim(s) 1-11, 14, 16-23, 25, 27-34, 36, and 38 is/are withdrawn from consideratio

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 12, 13, 15, 24, 26, 35, and 37 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examine

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some* c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. Applicants' election of Group VII, claims 12, 13, 15, 24, 26, 35, and 37 with traverse is acknowledged. The Examiner has carefully reviewed the applicants' arguments from the response to the restriction requirement filed May 16, 2003, but still maintains the restriction requirement for the following reasons. The Examiner disagrees with the applicants that Groups I and VII are claimed and disclosed as being capable of use together, have the same mode of operation, the same function, the same effects and connected in design and operation as required under MPEP 806.04 and MPEP 808.01. The Examiner wants to point out that Groups I and VII are in fact different and distinct inventions since Group I involves a digital video encoder and method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising selecting the similar block of the second image as the determined block for which the determined mismatch value is lowest, wherein if a predetermined termination criterion is met, the search terminates and, among the determined blocks of the second image, the determined block having the minimum mismatch value is selected, while Group VII involves a method of selecting, for a block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels, comprising wherein step (iv) is terminated upon at least one termination criterion being satisfied, the termination criterion being defined in terms of a respective threshold value. Therefore, contrary to the applicants' statements, it is submitted that Groups I and VII are distinct from each other since they are not disclosed as capable of use together and they have different modes, different functions, or different effects. Further, there would be a serious burden for the search and examination of the

claims in Groups I and VII since these inventions are distinct for reasons given above and the search required for Group I is not required for Group VII. The restriction requirement dated April 16, 2003 is thereby deemed proper for the above reasons, and consequently claims 12, 13, 15, 24, 26, 35, and 37 will now be examined while claims 1-11, 14, 16-23, 25, 27-34, 36, and 38 will be withdrawn from further consideration. The restriction requirement in hereby made **FINAL**!

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, all the method steps as claimed in claims 12, 13, 15, 24, 26, 35, and 37 must be shown or the feature(s) canceled from the claim(s). It is advised for the applicants to provide a new figure with a flowchart showing all the method steps as claimed. If such a figure is to be produced in response to this Office Action, the Specification should also be amended appropriately to include a description of the new figure. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. Claims 12, 13, 15, 24, 26, 35, and 37 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

(1) claim 12, line 7, "said zones" shows no clear antecedent basis;

(2) claim 12, line 10, it is unclear what "said pixel" is referring to. If "said pixel" is referring to "a reference pixel" as shown at line 4, then "said pixel" should be changed to "said reference pixel";

(3) claim 15, line 8, "said zones" shows no clear antecedent basis;

(4) claim 15, line 11, it is unclear what "said pixel" is referring to. If "said pixel" is referring to "a reference pixel" as shown at line 4, then "said pixel" should be changed to "said reference pixel";

(5) claim 15, line 12, "said block" shows multiple antecedent basis (see lines 1, 2, and 6)

(6) claim 24, line 3, "a similar block" should be changed to "the similar block" in order to provide proper antecedent basis for the same as specified at claim 12, line 2;

(7) claim 26, line 3, "a similar block" should be changed to "the similar block" in order to provide proper antecedent basis for the same as specified at claim 15, line 2;

(8) claim 35, line 3, "a block" should be changed to "the similar block" for consistency and to clear set forth the metes and bounds of the claimed limitations corresponding to claim 12 (see line 2 of claim 12); and

(9) claim 37, line 3, "a block" should be changed to "the similar block" for consistency and to clear set forth the metes and bounds of the claimed limitations corresponding to claim 15 (see line 2 of claim 15).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 12, 24, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Jung of record (5,717,470).

Jung discloses a method and apparatus for detecting optimum motion vectors based on a hierarchical motion estimation approach as shown in 1-3, and the same method of selecting, for a first block of a first image based on an array of pixels, a similar block of a second image based on the array of pixels (see column 4, lines 11-28), the method including defining a reference pixel of the array (i.e., the candidate blocks comprises reference pixels, see column 4, lines 11-28); deriving at least one threshold value (see column 4, line 66 to column 5, line 17); defining at least one search zone in the array, labelled by integer index i, the zones surrounding the reference pixel and having a radius which increases for increasing i (see Figure 3 and column 4, line 34 to column 5, line 17); for successive zones, and for successive pixels in each zone, determining a block of the second image based on the pixel, and determining a mismatch value between the first block of the first image and the determined block based on a mismatch criterion, and selecting the similar block

of the second image as the determined block for which the determined mismatch is lowest, wherein the determining steps is terminated upon at least one termination criterion being satisfied, the termination criterion being defined in terms of a respective threshold value (see Figure 3, column 2, line 49 to column 3, line 55, column 4, line 34 to column 5, line 7); a method of encoding a first image which includes defining successive blocks of the first image, and for each block of the first image selecting a similar block of a second image by a method according to claim 12, and encoding the block of the first image as data specifying the similar block of the second image, and the data specifying differences between the block of the first image and the similar block of the second image (see column 1, line 31 to column 2, line 14); and computer readable medium storing computer executable program code for performing a method according to claim 12, whereby execution of the code by a processor causes the processor to select a block of the second image (see column 1, line 31 to column 2, line 14).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 13, 15, 26, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung as applied to claims 12, 24, and 35 in the above paragraph (5), and further in view of Moriyoshi (6,549,576).

Jung discloses substantially the same method as above, further including a method of encoding a first image which includes defining successive blocks of the first image, and for each block of the first image selecting a similar block of a second image by a method according to claim 15, and encoding the block of the first image as data specifying the similar block of the second image, and the data specifying differences between the block of the first image and the similar block of the second image (see column 1, line 31 to column 2, line 14).

Jung does not particularly disclose, though, in which in the deriving step, the at least one threshold value is determined based on a previously derived minimum mismatch value for at least one further block of the first image adjacent the first block of the first image, and deriving at least one threshold value based on a mismatch value of a second block of the first image adjacent the first block as claimed in claims 13 and 15. However, Moriyoshi discloses a motion vector detecting method and apparatus as shown in Figure 1, and teaches the conventional threshold value determination based on a previously derived minimum mismatch value for at least one further block of the first image adjacent the first block of the first image and deriving at least one threshold value based on a mismatch value of a second block of the first image adjacent the first block (see column 2, line 40 to column 3, line 32). Therefore, it would have been obvious to one of ordinary skill in the art, having the Jung and Moriyoshi references in front of him/her and the

general knowledge of threshold value settings within video motion estimation systems, would have had no difficulty in providing the threshold value determination based on a previously derived minimum mismatch value for at least one further block of the first image adjacent the first block of the first image and deriving at least one threshold value based on a mismatch value of a second block of the first image adjacent the first block all as part of the motion estimation within Jung for the same well known motion vector detecting within motion estimation systems purposes as claimed.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krishnamurthy et al discloses a method and apparatus for estimating motion using block features obtained from an M-ary pyramid.

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

5/30/03